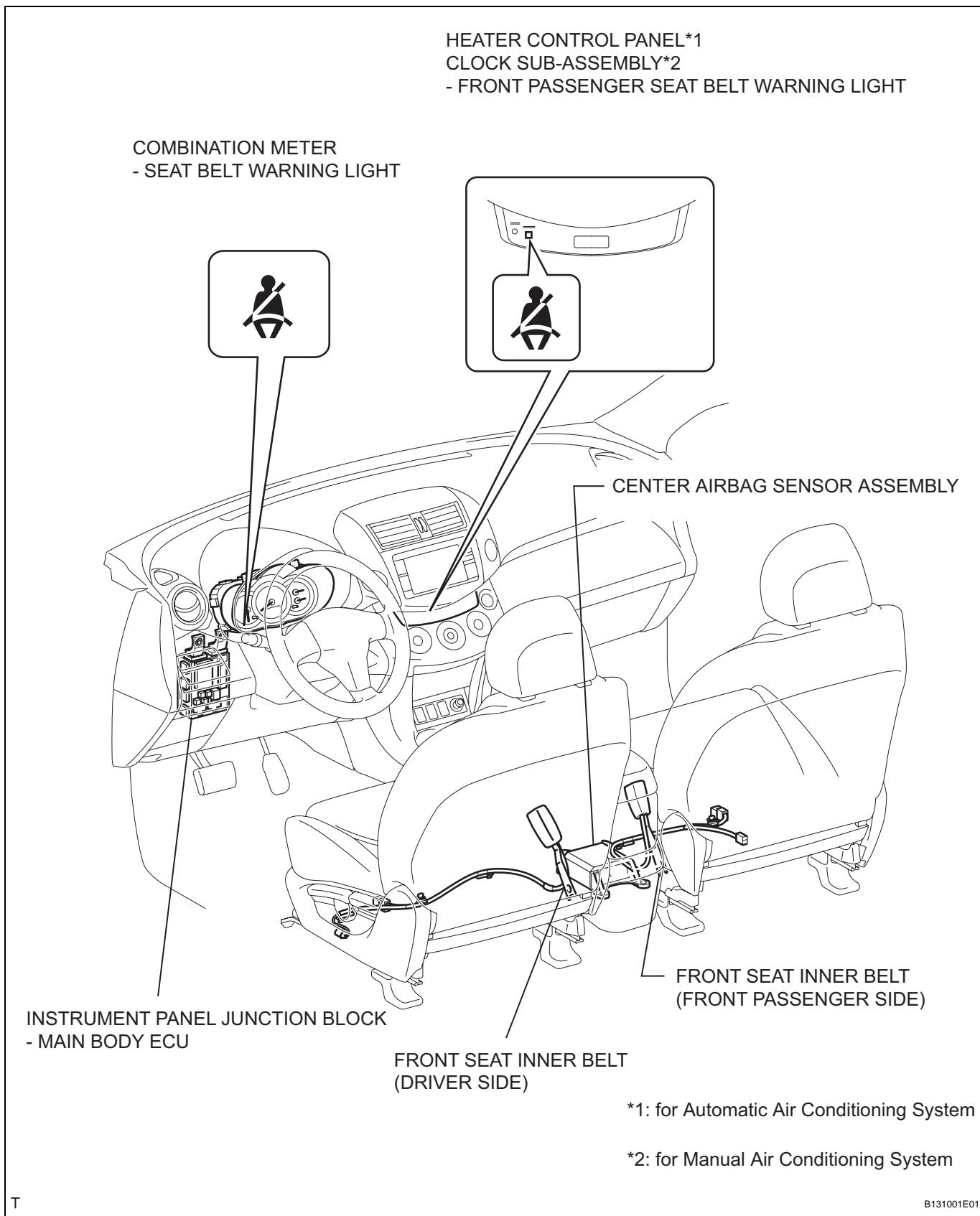
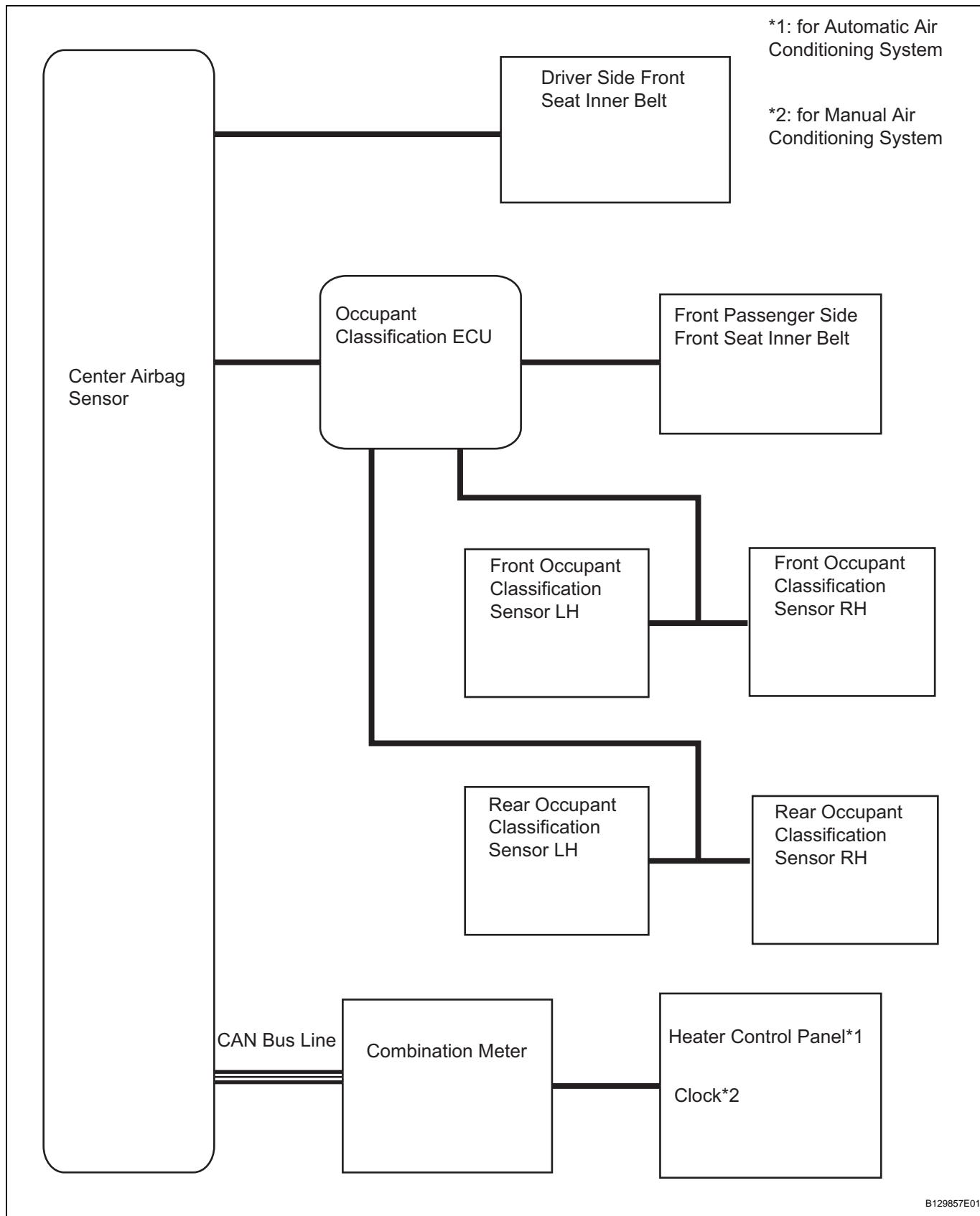


SEAT BELT WARNING SYSTEM

PARTS LOCATION



SYSTEM DIAGRAM



SYSTEM DESCRIPTION

- 1. DRIVER SEAT BELT WARNING LIGHT**
 - (a) When the driver seat belt is not fastened with the ignition switch ON, the driver seat belt warning light on the combination meter comes on to inform the driver. The center airbag sensor detects the driver seat belt status and sends signals to the combination meter through the CAN bus line.
- 2. PASSENGER SEAT BELT WARNING LIGHT**
 - (a) for Automatic air conditioning system:
When the passenger seat belt is not fastened with the ignition switch ON and the passenger seat occupied, check that the passenger seat belt warning light on the heater control panel display blinks. The combination meter detects the passenger seat belt status and whether the passenger seat is occupied.
 - (b) for Manual air conditioning system:
When the passenger seat belt is not fastened with the ignition switch ON and the passenger seat occupied, check that the passenger seat belt warning light on the clock panel blinks. The combination meter detects the passenger seat belt status and whether the passenger seat is occupied.

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use these procedures to troubleshoot the seat belt warning system.
- *: Use the intelligent tester.

1 VEHICLE BROUGHT TO WORKSHOP

NEXT

2 INSPECT BATTERY VOLTAGE

Standard voltage:

11 to 14 V

If the voltage is below 11 V, recharge or replace the battery before proceeding.

NEXT

3 CHECK FUNCTION OF AIRBAG SYSTEM*

(a) Use the intelligent tester to check if the airbag system is functioning normally.

Result

Result	Proceed to
DTC is not output	A
DTC is output	B

B

GO TO AIRBAG SYSTEM

SB

A

4 CHECK FUNCTION OF OCCUPANT CLASSIFICATION SYSTEM*

(a) Use the intelligent tester to check if the occupant classification system is functioning normally.

Result

Result	Proceed to
DTC is not output	A
DTC is output	B

B

GO TO OCCUPANT CLASSIFICATION SYSTEM

A

5 | CHECK COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM (CAN)*

(a) Use the intelligent tester to check if the CAN Communication System (CAN) is functioning normally.

Result

Result	Proceed to
CAN DTC is not output	A
CAN DTC is output	B

B**GO TO CAN COMMUNICATION SYSTEM****A****6 | PROBLEM SYMPTOMS TABLE****Result**

Result	Proceed to
Fault is not listed in problem symptoms table	A
Fault is listed in problem symptoms table	B

B**Go to step 8****A****7 | OVERALL ANALYSIS AND TROUBLESHOOTING***

(a) DATA LIST / ACTIVE TEST (see page [SB-10](#))
(b) Terminals of ECU (see page [SB-7](#))
(c) On-vehicle Inspection (see page [SB-10](#))

NEXT**SB****8 | REPAIR OR REPLACE****NEXT****9 | CONFIRMATION TEST****NEXT****END**

OPERATION CHECK

- 1. INSPECT DRIVER SIDE SEAT BELT WARNING LIGHT**
 - (a) Turn the ignition switch ON.
 - (b) When the driver seat belt is not fastened, check that the driver seat belt warning light on the combination meter blinks.
 - (c) When the driver seat belt is fastened, check that the driver seat belt warning light on the combination meter is off.
- 2. INSPECT PASSENGER SIDE SEAT BELT WARNING LIGHT (For Automatic Air Conditioning System)**
 - (a) Turn the ignition switch ON.
 - (b) When the front passenger seat belt is not fastened with the passenger seat occupied, check that the front passenger seat belt warning light on the heater control panel display blinks.
 - (c) When the front passenger seat belt is fastened with the passenger seat occupied, check that the front passenger seat belt warning light on the heater control panel display is off.
- 3. REMOVE PASSENGER SIDE SEAT BELT WARNING LIGHT (For Manual Air Conditioning System)**
 - (a) Turn the ignition switch ON.
 - (b) When the front passenger seat belt is not fastened with the passenger seat occupied, check that the front passenger seat belt warning light on the clock panel blinks.
 - (c) When the front passenger seat belt is fastened with the passenger seat occupied, check that the front passenger seat belt warning light on the clock panel is off.
- 4. INSPECT SEAT BELT WARNING BUZZER**

HINT:
If the buzzer does not sound, the buzzer cancel setting may be set to ON.

 - (a) Turn the ignition switch ON.
 - (b) When the vehicle is driven at approximately 20 km/h (12.4 mph) or more while the driver or front passenger seat belt is not fastened, check that the buzzer in the combination meter sounds at 1.2 second intervals for 30 seconds.
 - (c) 30 seconds after the buzzer has first sounded, check that the buzzer sounds at 0.4 second intervals for 90 seconds.
 - (d) 120 seconds after the buzzer has first sounded, check that the buzzer stops.
 - (e) After the buzzer has stopped, turn the ignition switch off and then start the engine again. Drive the vehicle at approximately 25 km/h (16 mph) or more while the driver or front passenger seat belt is not fastened, and then check that the buzzer sounds again.

SB

- (f) After the buzzer has stopped, fasten the driver and front passenger seat belts. Drive the vehicle at approximately 25 km/h (16 mph) or more and unfasten the driver or front passenger seat belt, and then check that the buzzer sounds again.
- (g) After the buzzer has stopped, move the shift lever to the R position, and then move it to the D position. Drive the vehicle at approximately 25 km/h (16 mph) or more, and then check that the buzzer sounds again.

PROBLEM SYMPTOMS TABLE

HINT:

Use the table below to help determine the cause of the problem symptom. The potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

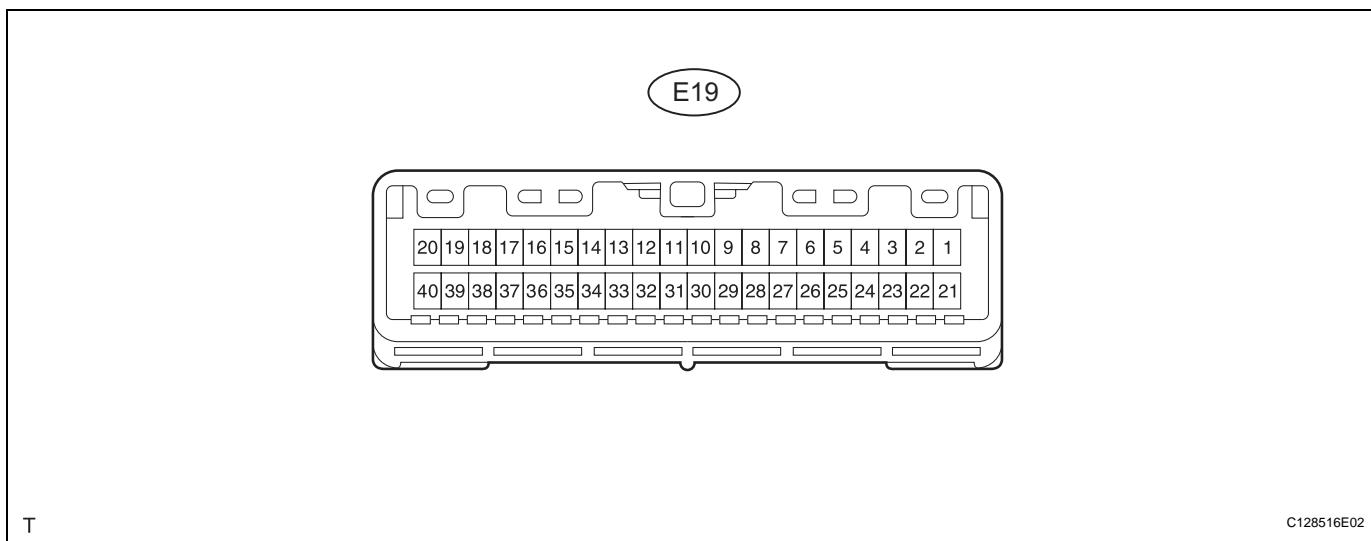
Seat belt warning system

Symptom	Suspected area	See page
Driver side seat belt warning light does not operate	1. Front seat inner belt LH	SB-12
	2. Center airbag sensor assembly	SB-12
	3. Combination meter	SB-12
	4. Wire harness	SB-12
Front passenger side seat belt warning light does not operate	1. Front seat inner belt RH	SB-15
	2. Combination meter	SB-15
	3. Occupant detection sensor	SB-15
	4. Heater control panel	SB-15
	5. Wire harness	SB-15

TERMINALS OF ECU

1. CHECK COMBINATION METER ASSEMBLY

(a) Disconnect the E19 meter connector.



T

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(b) Measure the voltage and resistance of the wire harness side connector.

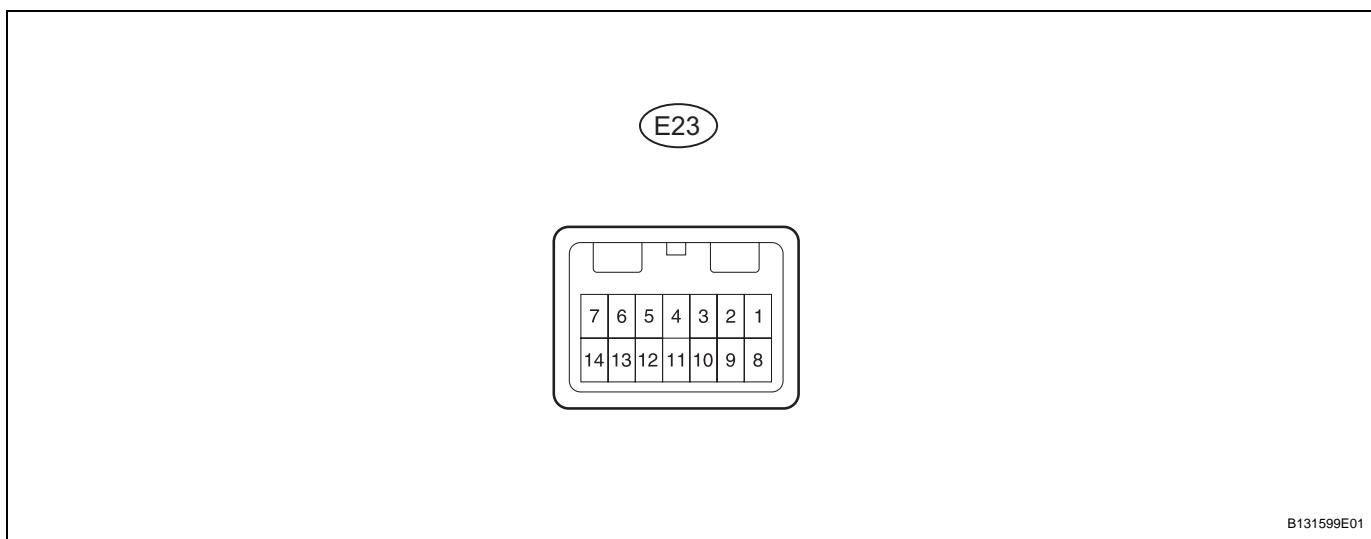
Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
B (E19-22) - Body ground	R - Body Ground	Power supply	Always	10 to 14 V
IG+ (E19-21) - Body ground	B - Body Ground	Power supply	Ignition switch OFF	Below 1 V
			Ignition switch ON	10 to 14 V
PBLT (E19-1) - Body ground	LG - Body Ground	Passenger seat belt signal	Sit on passenger seat, seat belt is fastened	Below 1 Ω
			Sit on passenger seat, seat belt is unfastened	10 kΩ or higher
ET (E19-33) - Body ground	W-B - Body Ground	Ground	Always	Below 1 Ω

If the result is not as specified, there may be a malfunction on the wire harness side.

SB

2. CHECK HEATER CONTROL PANEL (for Automatic Air Conditioning System)

(a) Disconnect the E23 panel connector.



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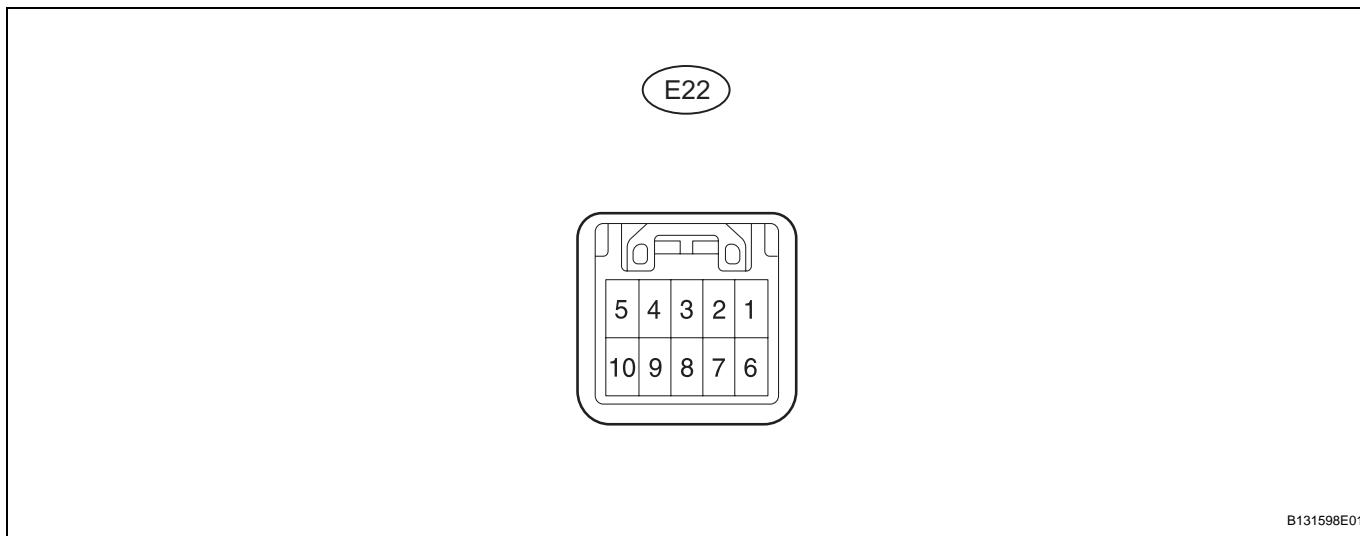
(b) Measure the voltage and resistance of the wire harness side connector.

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
+B (E23-1) - Body ground	R - Body Ground	Power supply	Always	10 to 14 V
IG+ (E23-2) - Body ground	L - Body Ground	Power supply	Ignition switch OFF	Below 1 V
			Ignition switch ON	10 to 14 V
PBEW (E23-4) - Body ground	LG - Body Ground	Passenger seat belt signal	Sit on passenger seat, seat belt is fastened	Below 1 Ω
			Sit on passenger seat, seat belt is unfastened	10 kΩ or higher
GND (E23-7) - Body ground	W-B - Body Ground	Ground	Always	Below 1 Ω

If the result is not as specified, there may be a malfunction on the wire harness side.

3. CHECK CLOCK ASSEMBLY (for Manual Air Conditioning System)

(a) Disconnect the E22 clock connector.



B131598E01

SB

(b) Measure the voltage and resistance of the wire harness side connector.

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
+B (E22-1) - Body ground	R - Body ground	Power supply	Always	10 to 14 V
IG+ (E22-2) - Body ground	L - Body ground	Power supply	Ignition switch OFF	Below 1 V
			Ignition switch ON	10 to 14 V
PBEW (E22-3) - Body ground	LG - Body ground	Passenger seat belt signal	Sit on passenger seat, seat belt is fastened	Below 1 Ω
			Sit on passenger seat, seat belt is unfastened	10 kΩ or higher
GND (E22-5) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

If the result is not as specified, there may be a malfunction on the wire harness side.

DIAGNOSIS SYSTEM

1. DESCRIPTION

(a) Data of the system can be read through the Data Link Connector 3 (DLC3) of the vehicle. Therefore, when the system seems to be malfunctioning, use the intelligent tester to check for a malfunction and repair it.

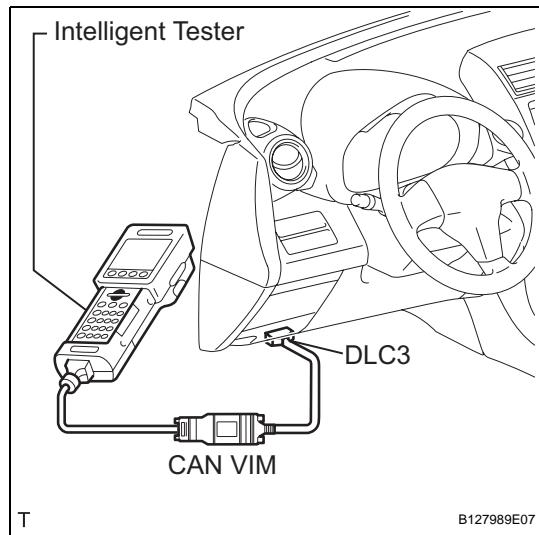
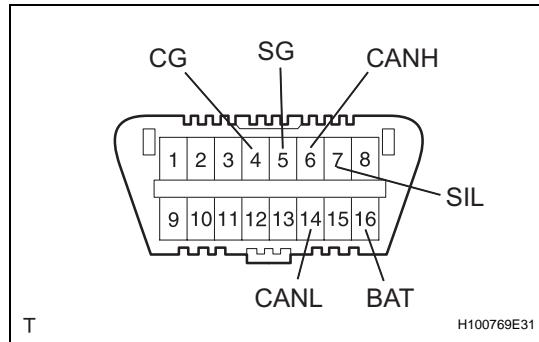
2. CHECK DLC3

(a) The vehicle's ECM uses ISO 15765-4 communication protocol. The terminal arrangement of the DLC3 complies with SAE J1962 and matches the ISO 15765-4 format.

HINT:

Connect the cable of the intelligent tester to the DLC3, turn the ignition switch ON and attempt to use the tester. If the display indicates that a communication error has occurred, there is a problem either with the vehicle or with the tester.

- If communication is normal when the tester is connected to another vehicle, inspect the DLC3 of the original vehicle.
- If communication is still not possible when the tester is connected to another vehicle, the problem may be in the tester itself. Consult the Service Department listed in the tester's instruction manual.



SB

Symbols (Terminal No.)	Terminal Description	Condition	Specified Condition
SIL (7) - SG (5)	Bus "+" line	During transmission	Pulse generation
CG (4) - Body ground	Chassis ground	Always	Below 1 Ω
SG (5) - Body ground	Signal ground	Always	Below 1 Ω
BAT (16) - Body ground	Battery positive	Always	11 to 14 V
CANH (6) - CANL (14)	HIGH-level CAN bus line	Ignition switch OFF	54 to 69 Ω
CANH (6) - Battery positive	HIGH-level CAN bus line	Ignition switch OFF	1 MΩ or higher
CANH (6) - CG (4)	HIGH-level CAN bus line	Ignition switch OFF	1 kΩ or higher
CANL (14) - Battery positive	LOW-level CAN bus line	Ignition switch OFF	1 MΩ or higher
CANL (14) - CG (4)	LOW-level CAN bus line	Ignition switch OFF	1 kΩ or higher

DATA LIST / ACTIVE TEST

1. ACTIVE TEST

HINT:

Performing the intelligent tester ACTIVE TEST allows relay, VSV, actuator and other items to be operated without removing any parts. Performing the ACTIVE TEST early in troubleshooting is one way to save time. The DATA LIST can be displayed during the ACTIVE TEST.

- (a) Connect the intelligent tester to the DLC3.
- (b) Turn the ignition switch ON.
- (c) Perform the ACTIVE TEST according to the display on the tester.

Center airbag sensor:

Item	Test Details	Diagnostic Note
D-BELT REMIND	D-SEAT BELT warning light (OFF / ON)	Confirm that the vehicle is stopped, engine idling
P-BELT REMIND	P-SEAT BELT warning light (OFF / ON)	Confirm that the vehicle is stopped, engine idling

ON-VEHICLE INSPECTION

- 1. CHECK DRIVER SIDE SEAT BELT WARNING LIGHT**
 - (a) Turn the ignition switch ON.
 - (b) When the driver side seat belt is not fastened, check that the combination meter's driver side seat belt warning light starts blinking.
 - (c) When the seat belt is fastened, check that the combination meter's driver side seat belt warning light turns off.
- 2. CHECK PASSENGER SIDE SEAT BELT WARNING LIGHT**
 - (a) Turn the ignition switch ON.
 - (b) When the front passenger seat belt is not fastened, check that the heater control panel's front passenger side seat belt warning light starts blinking.
 - (c) When the front passenger seat belt is fastened, check that the heater control panel's front passenger side seat belt warning light turns off.
- 3. CHECK SEAT BELT WARNING BUZZER**
 - (a) Turn the ignition switch ON.
 - (b) After turning the ignition switch ON, if the vehicle is driven at 20 km/h (12.4 mph) or more and the driver side or front passenger side seat belt is not fastened, check that the combination meter's buzzer sounds at 1.2 second intervals for 30 seconds.
 - (c) 30 seconds after the buzzer first sounds, check that the buzzer sounds at 0.4 second intervals for 90 seconds.
 - (d) 120 seconds after the buzzer has first sounded, check that the buzzer stops.
 - (e) After the buzzer has stopped, turn the ignition switch OFF and then start the engine again. With the driver side or front passenger side seat belt unfastened, drive the vehicle at 20 km/h (12.4 mph) or more. Check that the buzzer sounds.
 - (f) After the buzzer has stopped, fasten the driver side or front passenger side seat belt, drive the vehicle at 20 km/h (12.4 mph) or more, and then unfasten the seat belt. Check that the buzzer sounds.
 - (g) After the buzzer has stopped, move the shift lever to R. Then move the shift lever to D and with the driver side or front passenger side seat belt unfastened, drive the vehicle at 20 km/h (12.4 mph) or more. Check that the buzzer sounds.

SB

Driver Side Seat Belt Warning Light does not Operate

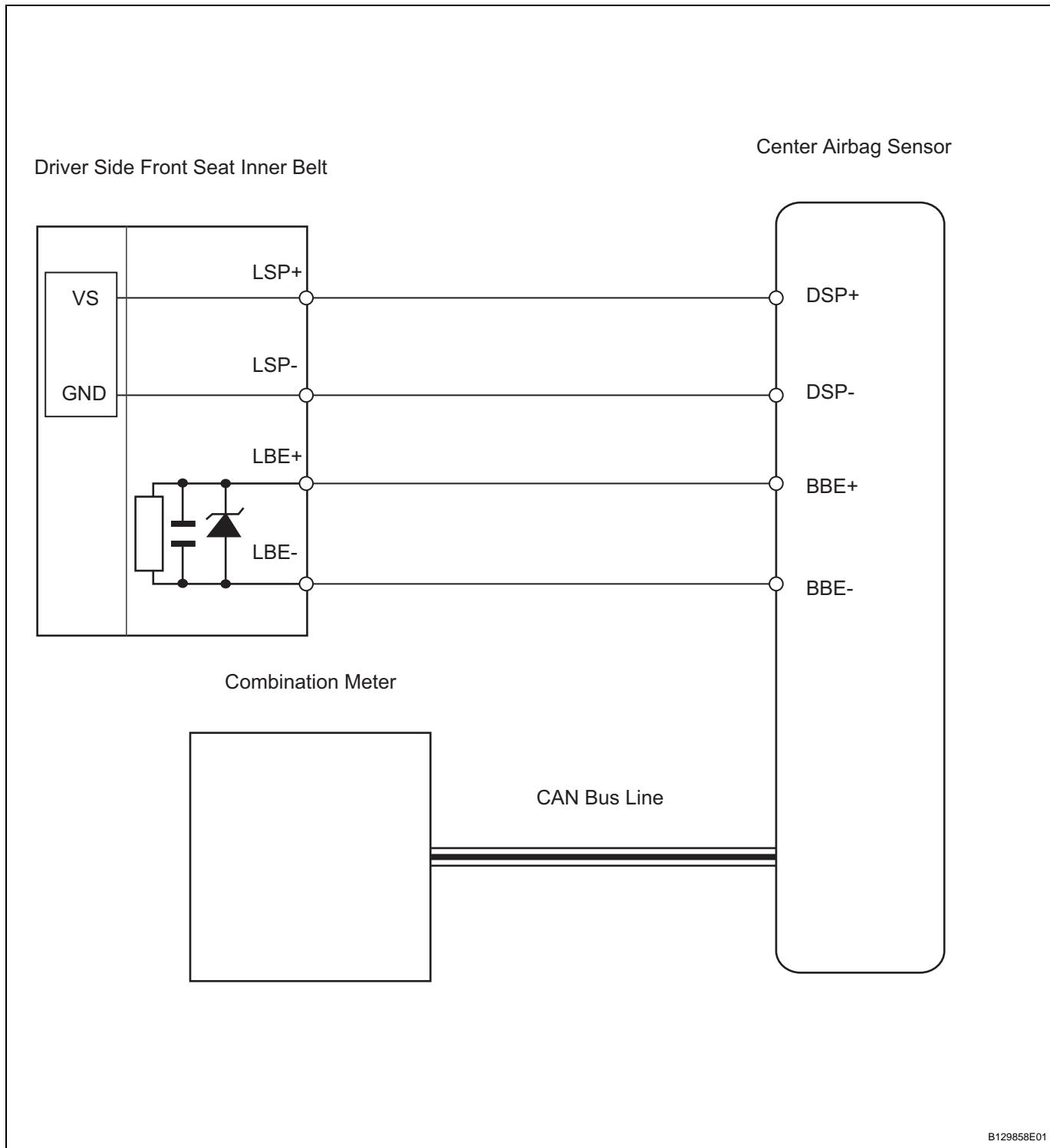
DESCRIPTION

When the ignition switch is ON, the center airbag sensor transmits front seat inner belt status signals to the combination meter through the CAN bus line. If the driver seat belt is not fastened, the combination meter blinks the driver side seat belt warning light. If the seat belt is fastened, the warning light goes off.

NOTICE:

The seat belt warning system uses the CAN bus line. Before troubleshooting the seat belt warning system, perform "COMMUNICATION FUNCTION CHECK" by following "HOW TO PROCEED WITH TROUBLESHOOTING" to confirm that the communication systems are normal.

SB

WIRING DIAGRAM

INSPECTION PROCEDURE**1 PERFORM ACTIVE TEST USING INTELLIGENT TESTER**

(a) Select the Active Test, use the intelligent tester to generate a control command, and then check that the seat belt warning light operates.

Center airbag sensor:

Item	Test Details	Diagnosis Note
D-BELT REMIND	D-SEAT BELT warning light (OFF/ON)	-

OK:

Driver side seat belt warning light operates normally.



REPLACE COMBINATION METER ASSEMBLY

OK

REPLACE CENTER AIRBAG SENSOR ASSEMBLY

SB

Front Passenger Side Seat Belt Warning Light Malfunction

DESCRIPTION

When the ignition switch is ON, the center airbag sensor transmits front seat inner belt status signals to the combination meter through the CAN bus line. If the front passenger seat belt is not fastened, the heater control panel (automatic A/C) or clock (manual A/C) blinks the front passenger seat belt warning light. If the seat belt is fastened, the warning light goes off.

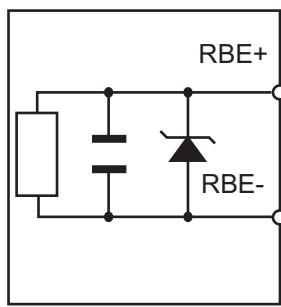
NOTICE:

The seat belt warning system uses the CAN bus line. Before troubleshooting the seat belt warning system, perform "COMMUNICATION FUNCTION CHECK" by following "HOW TO PROCEED WITH TROUBLESHOOTING" to confirm that the communication systems are normal.

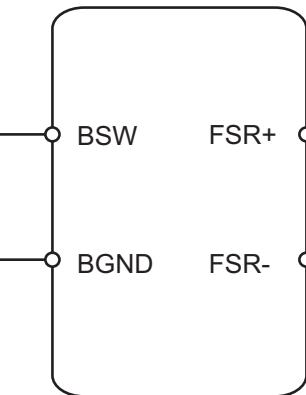
WIRING DIAGRAM

*1: for Automatic Air Conditioning System *2: for Manual Air Conditioning System

Front Passenger Side
Front Seat Inner Belt



Occupant Classification ECU

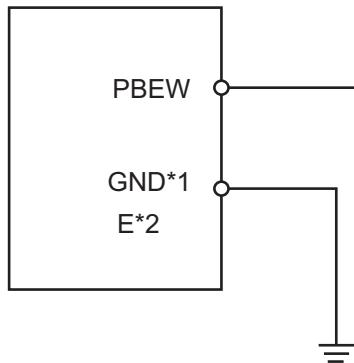


Center Airbag Sensor

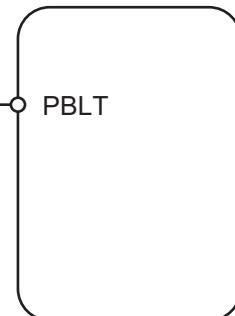


Heater Control Panel*1

Clock*2



Combination Meter



CAN Bus Line

INSPECTION PROCEDURE

1 PERFORM ACTIVE TEST BY INTELLIGENT TESTER

(a) Select the Active Test, use the intelligent tester to generate a control command, and then check that the seat belt warning light operates.

Center airbag sensor:

Item	Test Details	Diagnostic Note
P-BELT REMIND	P-SEAT BELT warning light (OFF/ON)	Confirm that the vehicle is stopped, engine idling

OK:

Passenger side seat belt warning light operates normally.

OK

REPLACE CENTER AIRBAG SENSOR ASSEMBLY

NG

2 CHECK A/C TYPE

(a) Check system.

A/C type	Proceed to
for Automatic air conditioning system	A
for Manual air conditioning system	B

B

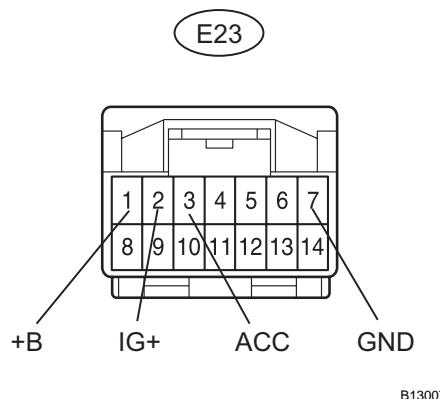
Go to step 6

A

3 CHECK HEATER CONTROL PANEL (POWER SOURCE CIRCUIT)

SB

Wire Harness Side



B130079E01

(a) Disconnect the E23 panel connector.
(b) Measure the voltage and resistance of the wire harness side connector.

Standard voltage

Tester Connection	Condition	Specified Condition
E23-1 (+B) - Body ground	Always	10 to 14 V
E23-2 (IG+) - Body ground	Ignition switch ON	10 to 14 V
E23-3 (ACC) - Body ground	Ignition switch ON (ACC)	10 to 14 V

Standard resistance

Tester Connection	Specified Condition
E23-7 (GND) - Body ground	Below 1 Ω

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

4 CHECK WIRE HARNESS (HEATER CONTROL PANEL - COMBINATION METER ASSEMBLY)

- (a) Disconnect the E23 panel connector.
- (b) Disconnect the E19 meter connector.
- (c) Measure the resistance of the wire harness side connectors.

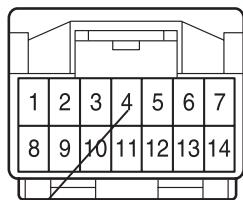
Standard resistance

Tester Connection	Specified Condition
E19-1 (PBLT) - E23-4 (PBEW)	Below 1 Ω

Wire Harness Side

Heater Control Panel

E23



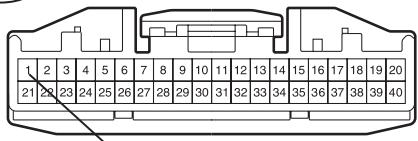
PBEW

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

Combination Meter

E19



PBLT

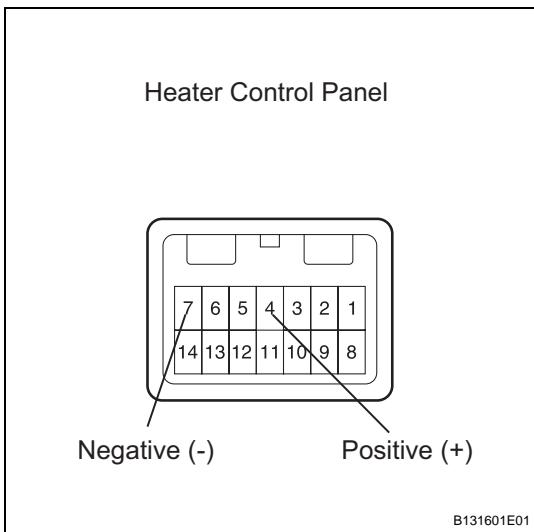
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SB

OK

5 INSPECT HEATER CONTROL PANEL

- (a) Remove the heater control panel.



(b) Apply battery voltage and check that the front passenger side seat belt warning light illuminates.

OK

Measurement Condition	Specified Condition
Battery positive (+) - Terminal 4 Battery negative (-) - Terminal 7	Front passenger side seat belt warning light illuminates

HINT:

When the battery's negative (-) lead is applied to terminal 4 and the positive (+) lead is applied to terminal 7, the seat belt warning light does not illuminate.

NG

REPLACE HEATER CONTROL PANEL

OK

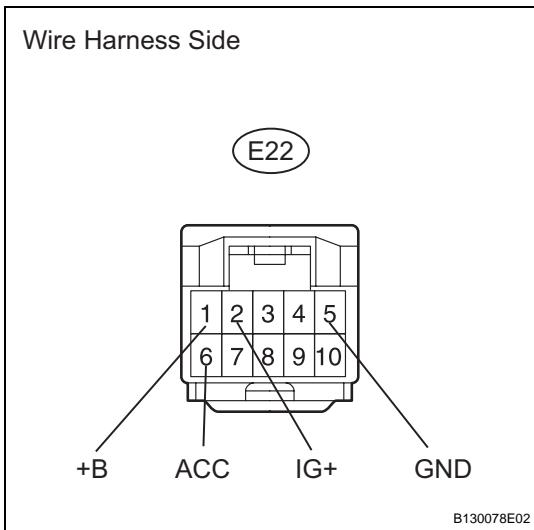
REPLACE COMBINATION METER ASSEMBLY

6 CHECK CLOCK SUB-ASSEMBLY (POWER SOURCE CIRCUIT)

(a) Disconnect the E22 clock connector.
(b) Measure the voltage and resistance of the wire harness side connector.

Standard voltage

Tester Connection	Condition	Specified Condition
E22-1 (+B) - Body ground	Always	10 to 14 V
E22-6 (ACC) - Body ground	Ignition switch ACC	10 to 14 V
E22-2 (IG+) - Body ground	Ignition switch ON	10 to 14 V



Standard resistance

Tester Connection	Specified Condition
E22-5 - Body ground	Below 1 Ω

NG

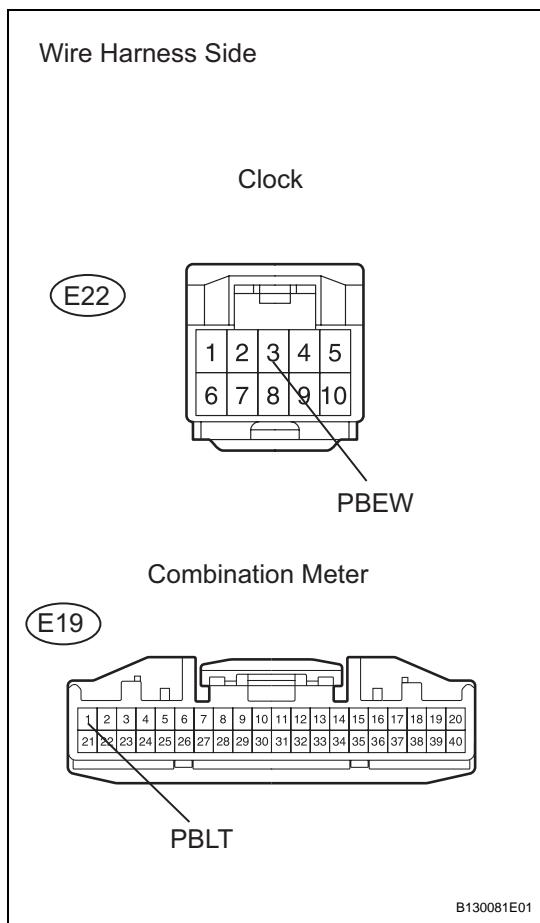
REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

7 CHECK WIRE HARNESS (CLOCK - COMBINATION METER)

(a) Disconnect the E22 clock connector.

SB



OK

- (b) Disconnect the E19 meter connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
E22-3 (PBEW) - E19-1 (PBLT)	Below 1 Ω

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

8**INSPECT CLOCK SUB-ASSEMBLY**

- (a) Remove the clock.
- (b) Apply battery voltage and check that the front passenger side seat belt warning light illuminates.

OK

Measurement Condition	Specified Condition
Battery positive (+) - Terminal 3	Front passenger side seat belt warning light illuminates
Battery negative (-) - Terminal 5	

HINT:

When the battery's negative (-) lead is applied to terminal 3 and the positive (+) lead is applied to terminal 5, the seat belt warning light does not illuminate.

NG

REPLACE CLOCK SUB-ASSEMBLY

OK

REPLACE COMBINATION METER ASSEMBLY